

### 3.5 Rivers and Streams Agricultural Designated Use Assessment

**Surface Water Goal:** Our surface waters (tidal and non-tidal) will support human and ecosystem health and applicable uses such as recreation, fishing, drinking water supply, agriculture, and industry.

#### 3.5.1 Rivers and Streams Agricultural Designated Use Assessment Method

At the present time, New Jersey's Surface Water Quality Standards (N.J.A.C. 7:9B) have not established specifically for agricultural designated use. Although designated uses such as human health, ecosystem protection, drinking water supply, and fishing have Surface Water Quality Standards (SWQS) established that are applicable to agriculture, the water-quality standards suitable for agriculture are normally higher, precluding the need for criteria specific to agricultural uses.

In order to evaluate water supplies that support agriculture in New Jersey, guidelines were referenced from the U.S. Department of Interior Natural Resources Conservation and other states (Follet, 1999 and Bauder, 1998). These recommended standards provided a baseline to evaluate whether water supplies support common agricultural practices such as irrigation and livestock raising in the state.

For this assessment, total dissolved solids (TDS) and salinity were selected as the determining parameters for agricultural use. Salinity was chosen due to its adverse and immediate impact on all agricultural practices, while TDS has a similar impact as well as indicating other possible contamination from runoff. The lower of the recommended standards for irrigation and livestock was applied in this assessment as the acceptable level to fully support agricultural use. Acceptable levels for total dissolved solids and salinity were established as at or below 2,000 mg/l (Follet, 1999). If TDS or salinity data were not available, specific conductance was used as a surrogate with a specific conductance of 3,000 us/cm approximately equivalent to TDS and saline levels of 2,000 mg/l (United Nations, 1985).

It is understood that the impact on crops and livestock varies depending on non-water factors such as type of livestock, crop tolerance, soil type, drainage, irrigation methods and management; therefore the exceedence of these limits do not necessarily impair uses for agriculture. On the other hand, concentrations below these limits may restrict agricultural use in certain circumstances. Therefore, although surface water standards may be suitable to indicate full or partial support, the designated use category of no support is defined as only when a water supply no longer supports existing agricultural designated uses.

As shown below on Table 3.5-1, EPA Guidance for the Preparation of Water Quality Inventory Reports was applied to the selected indicators of agricultural use: salinity and TDS.

<b>Table 3.5.1: Agricultural Use Assessment Method for Rivers and Streams</b>	
<b>Full Support</b>	TDS > 2000 mg/l or Salinity > 2000 mg/l in less than or equal to 10% of samples.
<b>Full Support but Threatened</b>	Meets full support but statistically significant adverse trends indicate full support will not be attained in 2 years.
<b>Partial Support</b>	TDS > 2000 mg/l or Salinity > 2000 mg/l in greater than 10% of samples.
<b>No Support</b>	Termination of use as an agricultural supply.
<b>Notes:</b> Rivers and streams evaluated based upon SWQS categories FW2 and PL. This assessment does not include the Delaware River.	

**Spatial Extent of Assessment:** This assessment was based on data collected at 76 of 81 Ambient Stream Monitoring Network (ASMN) stations. The 5 Delaware River mainstem stations were not included because the Delaware River Basin Commission (DRBC) assesses this waterbody. (DRBC, 2000)

In previous New Jersey Water Quality Inventory Reports, each station was assumed to represent 5 miles of stream. For this assessment, each station was assumed to represent the stream reach that was monitored. Stream reaches have been defined by USEPA in the Reach File 3 system, which can be used on GIS. Reach File 3 (RF3) was mapped at a moderate 1:100,000 scale. Using RF3, the 76 ASMN stations represent 176.4 of 6420 (2.7%) river miles. The RF3 reach identification number and reach length are provided in Table A3.1.2-1 in the Appendix. Use Rf3 was considered an intermediate approach to the more refined spatial assessment that will be provided by the redesigned ASMN.

It is important to note that the monitoring design used to collect these data does not support extrapolating the assessment results to locations or streams that were not monitored. Streams that appeared to have the greatest impacts were prioritized in this network.

### **3.5.2 Rivers and Streams Agricultural Designated Use Assessment Results**

Agricultural designated uses were fully supported in all river and stream reaches. There were no exceedences in any of the samples collected and no statistically significant adverse trends that would threaten agriculture were identified in the state. The assessment was based upon ASMN data collected from 1995 to 1997, thus this assessment was based on monitored data.

See Section 2.8 Nonpoint Source Management Program for programs that are reducing the impact of agriculture practices on water quality.